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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/531,170

04/11/2005

Flemming Munk

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25570 7590 05/03/2007
ROBERTS, MLOTKOWSKI & HOBBS
P. O. BOX 10064
MCLEAN, VA 22102-8064

EXAMINER

MORALES, JON ERIC C

ART UNIT

PAPER NUMBER

3766

MAIL DATE

DELIVERY MODE

05/03/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/531,170

Applicant(s)

MUNK, FLEMMING

Examiner

Jon-Eric C. Morales

Art Unit

3766

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 11 April 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) 3-5 is/are allowed.
- 6) ☒ Claim(s) 1, 2 and 6-8 is/are rejected.
- 7) ☒ Claim(s) 9 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 April 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☒ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

Oath/Declaration

1. Applicant is now required to submit a substitute declaration or oath to correct the deficiencies set forth the declaration is stated to be directed to a PCT application that this application claims priority from. The declaration or oath must be directed to the current application number not the PCT. The substitute oath or declaration must be filed within the THREE MONTH shortened statutory period set for reply in the "Notice of Allowability" (PTO-37). Extensions of time may NOT be obtained under the provisions of 37 CFR 1.136. Failure to timely file the substitute declaration (or oath) will result in **ABANDONMENT** of the application. The transmittal letter accompanying the declaration (or oath) should indicate the date of the "Notice of Allowance" (PTOL-85) and the application number in the upper right hand corner.

Priority

2. Receipt is acknowledged of a certified copy of the PCT/DK03/00680 application referred to in the oath or declaration or in an application data sheet. If this copy is being filed to obtain the benefits of the foreign filing date under 35 U.S.C. 119(a)-(d), applicant should also file a claim for such priority as required by 35 U.S.C. 119(b). If the application being examined is an original application filed under 35 U.S.C. 111(a) (other than a design application) on or after November 29, 2000, the claim for priority must be presented during the pendency of the application, and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior foreign application. See 37 CFR 1.55(a)(1)(i). If the application being examined

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has entered the national stage from an international application filed on or after November 29, 2000, after compliance with 35 U.S.C. 371, the claim for priority must be made during the pendency of the application and within the time limit set forth in the PCT and Regulations of the PCT. See 37 CFR 1.55(a)(1)(ii). Any claim for priority under 35 U.S.C. 119(a)-(d) or (f) or 365(a) or (b) not presented within the time period set forth in 37 CFR 1.55(a)(1) is considered to have been waived. If a claim for foreign priority is presented after the time period set forth in 37 CFR 1.55(a)(1), the claim may be accepted if the claim properly identifies the prior foreign application and is accompanied by a grantable petition to accept an unintentionally delayed claim for priority. See 37 CFR 1.55(c).

Specification

3. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The language should be clear and concise and should not repeat information given in the title. It should avoid using phrases which can be implied, such as, "The disclosure concerns," "The disclosure defined by this invention," "The disclosure describes," etc.

4. The abstract of the disclosure is objected to because the term "The invention" is used and should be avoided. Correction is required. See MPEP § 608.01(b).

Claim Rejections - 35 USC § 102

5. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

6. Claims 1, 2 and 6-8 are rejected under 35 U.S.C. 102(b) as being anticipated by Bennet, Jr. et al. (US Patent No. 5012815) (hereinafter Bennet).

Regarding claim 1, Bennet discloses the use of a microphone (transducer) and a amplifier to receive heart sound that create phonocardiographic signal (column 1 lines 27-35). This signal is characterized by a first sound and a second sound in the heart cycle with relation to time interval (column 2 lines 46-49, 56-59, and 65-67 column 3 lines 1-5). Signal is classified and features are extracted based on frequency (energy in relation to time by use of a bandpass filter, sampling at a high frequency (LF^L 's) where L is an integer with the power of 2 to create a higher frequency range and also use of a low frequency filtering (low pass filter) to display the signal spectra when the resolution is low (column 5 lines 10-14, 24-27, 34-37, 43-46).

Concerning claim 2 and 6, Bennet discloses extracting first and second heart sounds by classification according to heart sounds frequency (energy) level (column 5 lines 52-53). Eliminates contributions of the first and second heart sounds and performs spectral analysis and feature enhancement obtains energy relative to time interval (column 2 lines 65-67 column 3 lines 1-5, column 5 lines 10-14, 24-27, column 6 lines 39-44). Defined data classifies the distribution of energy and a comparison of the energy distributions to known heart murmur levels (column 13 lines 10-35). An analog to digital converter is used to convert heart sound signal into sampled data (column 4 lines 41-63).

Regarding claims 7 and 8, heart sound is delivered to stereophonic headphones. The heart sounds signal appear to be spread out spatially in order to hear murmurs with respect to the first and second heart sounds (column 4 lines 5-13, 20-32).

Claim Objections

7. Claim 9 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Allowable Subject Matter

8. Claims 3-5 are allowed over prior art of record.

The following is an examiner's statement of reasons for allowance:

In regards to claim 3, the procedure of extracting murmur information including obtaining a systole and a diastole power vector consisting of the sum of n_1 powers measured in each of the n_2 time slices and obtaining a systole and diastole mean frequency vector by weighting the power value for each n_1 frequency bands with the mean frequency of the corresponding element in the respective systole or diastole power vector has not been disclosed or suggested in the prior art when combined with the rest of the limitations of claim 3.

Conclusion

9. The following patent and patent application publications are cited and further show the state of the art with respect to extracting information from a heart sound signal in general:

US 20020173826 A1	US-PGPUB	Lincoln, William C. et al.
US 5685317 A	USPAT	Sjostrom; Svend-Olof
US 5036857 A	USPAT	Semmlow; John L. et al.
US 5086776 A	USPAT	Fowler, Jr.; Franklin S. et al.
US 6665564 B2	USPAT	Lincoln; William C. et al.
US 4649930 A	USPAT	Groch; Mark W. et al.
US 3318303 A	USOCR	KONRAD HAMMACHER
US 4378022 A	USPAT	Suobank; David W. et al.
US 4446873 A	USPAT	Groch; Mark W. et al.
US 3581735 A	USPAT	Gentner; Otto J. et al.
US 4967760 A	USPAT	Bennett, Jr.; William R. et al.
US 5825895 A	USPAT	Grasfield; James A. et al.
US 6002777 A	USPAT	Grasfield; James A. et al.

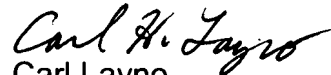
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jon-Eric C. Morales whose telephone number is 571-272-3107. The examiner can normally be reached on Monday through Friday from 8am - 5pm EST.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carl Layno can be reached on 571-272-4949. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Jon-Eric Morales
Patent Examiner
Art Unit 3766


Carl Layno
Acting Supervisory Patent
Examiner
Art Unit 3766

JEM

CARL LAYNO
PRIMARY EXAMINER